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ABSTRACT

On college and university campuses across the United States, depression has taken a huge toll on the academic and personal productivity of students, faculty, and staff. The results of a university's automated telephone screening survey for depression are reported here. Callers were recruited through a variety of media, including advertising and interviews on the radio and in the local and student newspapers. Each participant keyed in a toll-free telephone number and, after some introductory comments, was asked to answer a few general questions by manipulating the telephone keyboard. Next, the caller was administered the telephone adaptation of a 20-question depression screening scale. Of the 215 student callers, 84.6% revealed some type of depression. This suggests that telephone screening is able to tap significantly depressed individuals at a rate that is at last as high as in-person screening for faculty/staff, and at a significantly higher rate for students. Rates of depression found in this survey are not representative of the general populations of students since the callers were self-referred. This technology may have particular relevance on college campuses, where students may be adroit with electronic means of communication, but relatively inexperienced with accessing the mental health system. (RJM)

Automated Telephone Screening Survey for Depression on a University Campus

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On college and university campuses across the country, depression has taken a huge toll on the academic and personal productivity of students, faculty, and staff. The cost to the health care system of lack of recognition of depression is high, since depressed patients have been shown to be among the highest users of health care in the United States. Given the substantial pressures on college health centers to provide high quality care at relatively low cost to the consumers of these services, it behooves providers to find ways to recognize, assess, and treat depression in its earliest stages.

Although screening programs, such as National Depression Screening Day, have drawn thousands, some individuals may not be able to attend in-person screenings due to location remote from a screening site, scheduling conflicts, severe depression, physical disability, or embarrassment. Recently, hybrid telephone/computer systems called interactive voice response systems have been developed, allowing individuals to initiate a call to the system and respond to recorded questions using the buttons of a touch-tone telephone. It was hypothesized that this technology would also be ideal for automatic and remote administration of the Zung Self-Rating Depression Scale (SDS), which is the primary screening tool used on National Depression Screening Day.

METHOD

Screening Site.--The screening test was offered to individuals at the University of Nebraska-Lincoln, a large midwestern state university, with a population of approximately 35,000. UNL mounted its own publicity campaign just prior to and during the test's on-line availability. Callers were recruited through a variety of media, including advertising and interviews on the radio and in the local and student newspapers, as well as through electronic mail. One radio interview was fortuitously run during halftime of a non-televised Cornhusker football game, perhaps providing our broadest exposure to the target audience. Advertising and interviews consistently stressed the classical symptoms of depression and information about successful treatment outcome for this disorder. Individuals were urged to call if they recognized these symptoms in themselves and needed help in deciding whether to seek professional help. The test was available on-line for a two week period (September 26 through October 10, 1994) that included National Depression Screening Day (October 6).

Procedure.--Each participant keyed in a toll-free telephone number and, after some introductory comments, was asked to answer a few general questions (age, marital status, depression history) by manipulating the telephone keyboard. Next, the caller was administered the telephone adaptation of the 20-question SDS (Table 1). The caller could respond to the questions with "none or a little of the time," "some of the time," "a good part of the time," or "most or all of the time" by selecting the corresponding number on the telephone keypad, and callers were given the option to have a question repeated. These questions required less than ten minutes to complete and were followed by immediate feedback of the screening results (i.e., whether the caller's responses suggested no depression, minimal or mild depression, moderate or marked depression, or

severe or extreme depression). For callers scoring with at least minimal depression, toll-free telephone numbers to call for further information and follow-up with a mental health professional through the employee assistance program or counseling center (Counseling and Psychological Services) at UNL were provided. Callers who answered positively to question 19 (regarding suicide) were strongly encouraged to contact a health care provider regardless of their total score.

RESULTS

Among the 215 student callers, 67.9% were female; of the 63 faculty/staff, 68.3% were female (Table 2). Among all callers, 74.6% reported the call to have been at least moderately helpful. No technical problems were encountered during the trial, and the system was used throughout its 24 hours of operation each day, with the largest proportion of calls between 9 AM and 5 PM and a gradually reducing proportion of calls until 11 PM. (Figure 1).

For UNL students, 79.1% of callers were never treated for depression (Table 2). Nevertheless, only 33 (15.4%) of the 215 student callers' responses suggested no depression. 49 (22.8%) met criteria for minimal or mild depression, 79 (36.7%) met criteria for moderate or marked depression, and 54 (25.1%) met criteria for severe or extreme depression (Table 3).

For UNL faculty and staff, 69.8% were never treated for depression (Table 2). Only 14 (22.2%) of the 63 faculty/staff callers' responses suggested no depression. 24 (38.1%) met criteria for minimal or mild depression, 13 (20.6%) met criteria for moderate or marked depression, and 12 (19.0%) met criteria for severe or extreme depression (Table 3).

DISCUSSION

The 84.6% rate of positivity for depression (i.e., at least minimal depression) among student callers at UNL compares favorably to the average rate of 76.6% found at all in-person National Depression Screening Day sites in 1993. The faculty/staff rate of positivity at 77.8% is quite similar to the average national rate. What this seems to suggest is that the telephone screenings are able to tap significantly depressed individuals at a rate that is at least as high as in-person screenings for faculty/staff and at a significantly higher rate for students. Of course, the rates of depression found in this telephone survey are not representative of the general populations of students and faculty/staff at UNL, since the callers were self-referred because they recognized the publicized symptoms of depression in themselves.

Anecdotally, it was our finding that a number of students who accepted referrals based upon this automated screening, would have been very unlikely to seek treatment for what was determined to be significant depression. That is, many of these individuals were extremely withdrawn and isolated, sometimes with psychomotor retardation, and the prospect of generating the energy required to attend an in-person screening would have been quite daunting. Nevertheless, the information about success rates provided in the advertising, coupled with the objective data in the telephone screenings, may have been enough to encourage some of these individuals to seek help for their depression for the first time.

This technology may have particular relevance on college campuses, where students may be quite facile with electronic means of communication, but relatively inexperienced with accessing the mental health system. The fully automated method described here provides an efficient approach to screening that may also be applicable to a variety of other mental and physical health problems. The recent National Eating Disorders Screening, for example, is one such enterprise that appears ideally suited to anonymous telephone screenings, in that the target population is characterized by the dynamics of extreme shame and, consequently, isolation and secrecy.

As this technology becomes more widely known and accessible, automated telephone screenings have the potential to be a major weapon in our education and treatment armamentarium. This study was just the first step in determining that technology does have such a place in large scale screenings. It remains to be seen how broadly and effectively this knowledge can be applied to the benefit of our students, faculty, and staff and, more generally, for the good of society.

TABLE 1

CONTENT AREA OF QUESTIONS OF DEPRESSION SCREENING SCALE

Question	Content Area
1	Feeling downhearted, blue or sad
2	Feeling best in the morning
3	Having, or feeling like having crying spells
4	Having trouble sleeping
5	Eating as much as you used to
6	Enjoying attractive women or men
7	Losing weight
8	Trouble with constipation
9	Heart beating fast
10	Getting tired for no reason
11	Mind being clear
12	Finding it easy to do things
13	Feeling restless
14	Feeling hopeful about the future
15	Feeling irritable
16	Making decisions
17	Feeling useful and needed
18	Life feeling full
19	Feeling others would be better off if you were dead
20	Enjoying doing things

FIGURE 1

DISTRIBUTION OF DEPRESSION SCREENING CALLS

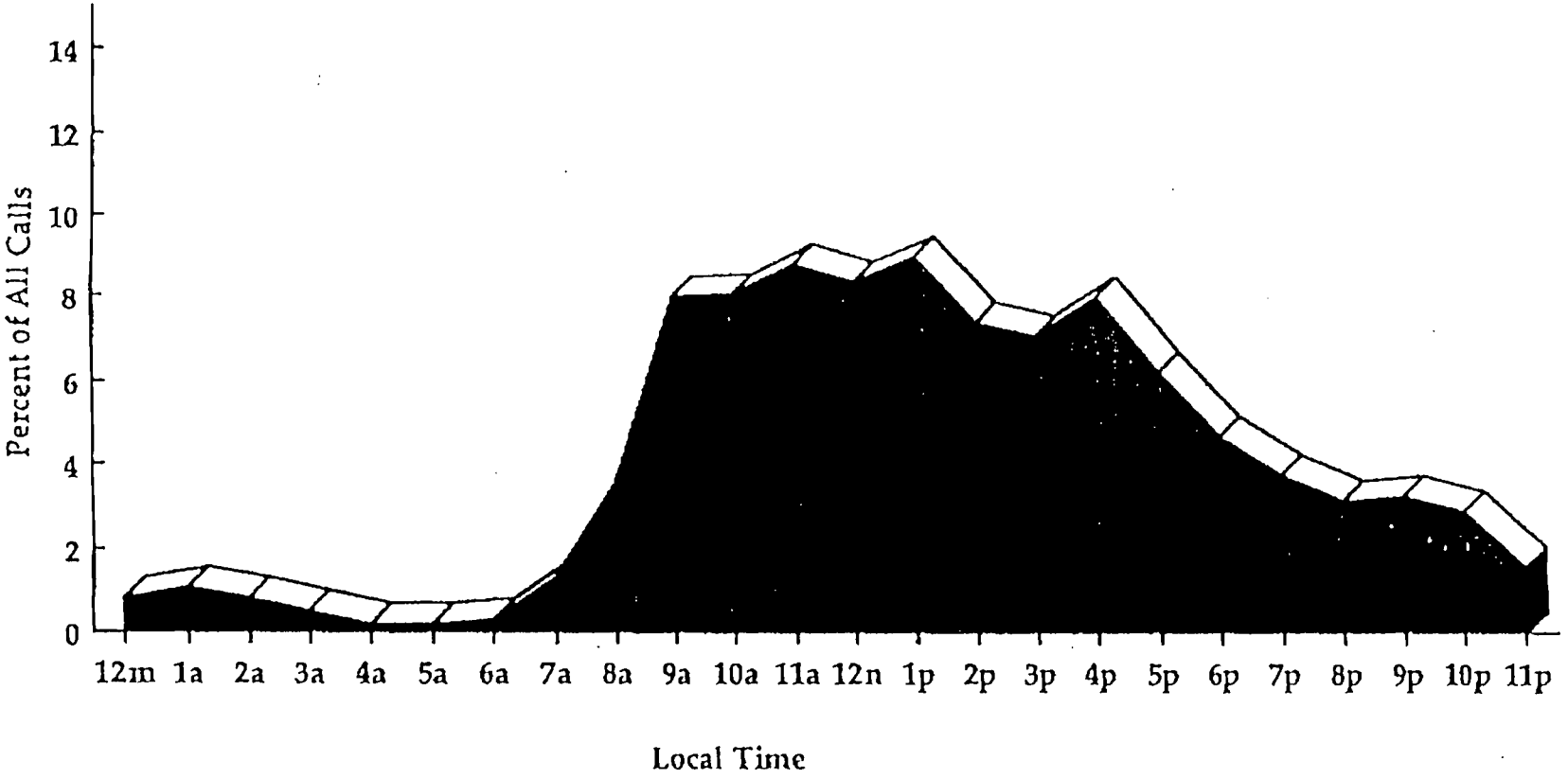

TABLE 2

DEMOGRAPHICS BY SOURCE OF CALLS

Site	Calls	Gender		Never Treated for Depression
		Female	Male	
UNL (Student)	215	146 (67.9%)	69 (32.1%)	170 (79.1%)
UNL (Faculty/Staff)	63	43 (68.3%)	20 (31.7%)	44 (69.8%)
All Calls	278	189 (68.0%)	89 (32.0%)	214 (77.0%)

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TABLE 3

DEPRESSION SEVERITY BY SOURCE OF CALLS

	Depression Severity				
Source	None	Minimal	Moderate	Extreme	Totals
UNL (Students)	33 (15.4%)	49 (22.8%)	79 (36.7%)	54 (25.1%)	215
UNL (Faculty/Staff)	14 (22.2%)	24 (38.1%)	13 (20.6%)	12 (19.0%)	63
Total Completed Calls	47 (16.9%)	73 (26.3%)	92 (33.1%)	66 (23.7%)	278

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